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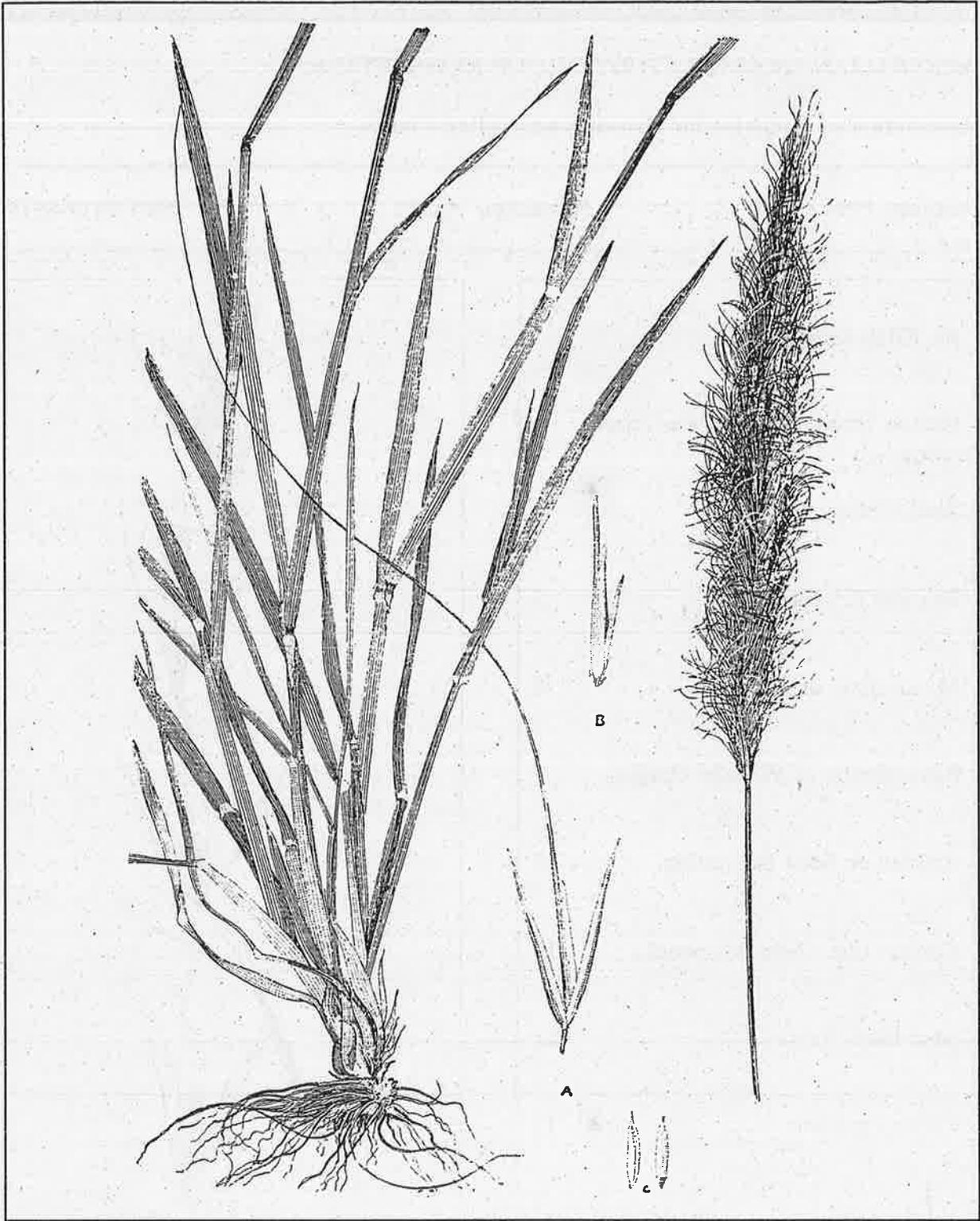
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Address all correspondence to:

**Knud Hansen, 30 Cairo Road, Box Hill North,
Victoria, 3129**



Dichelachne crinita

Key to smaller diagrams:

A: Spikelet B: Floret C: Grain, front and back views (All variously magnified)

[These diagrams and that on Page 1 reprinted from Turner, F. (1895) Australian Grasses Vol.1]

FEATURE GRASS

The following article was written by Knud Hansen, 30 Cairo Road, Box Hill North, Victoria, 3129.

Dichelachne crinita (Long-hair Plume-grass)

Background^{1,2,3}

The genus *Dichelachne* belongs to the sub family Pooideae and is found in Australia, New Zealand and the Pacific Islands. According to Simon (1990), six species occur in Australia.

Description^{1,2,3}

A tufted perennial with tall prominent inflorescences. The leaves are flat and green (or bluish-green), up to 20 cm. long and approximately 1 cm. wide. The inflorescences are dense spike-like panicles to approx 20 cm. long, which resemble pale plumes atop the culms of up to approximately one metre. Each panicle consists of over 100 overlapping spikelets with each spikelet containing only one floret. Much of the general appearance of the inflorescence is derived from the long (>25 mm.) awns attached to the notched lemmas. Flowering generally occurs between mid spring and early summer.

Distribution and Habitat^{1,2,4}

According to Simon (1990), Long-hair Plume-grass ranges along the east coast of mainland Australia and into Tasmania. Some other authors state that it also extends further west into South Australia and Western Australia. It is found in various grassland, heath, forest and woodland communities, particularly in coastal regions, and on drier soils.

Propagation^{2,5}

Propagation can be from seed or by division of tussocks. Seed is quickly collected, because it is produced in abundance. This species is a cool season grass, so seed should be sown in Autumn to maximize growth prior to the following Summer.

Benefits and Disadvantages^{5,6}

In flower, plants have considerable ornamental appeal, particularly in small group plantings, but at other times their appearance is uninspiring. Turner (1895) has made reference to the high value of the species as a native pasture grass. The seeds may cause skin irritation to some people.

References

1. Simon, B.K. (1990). A key to Australian grasses. Brisbane: Queensland Department of Primary Industries.
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4. Scarlett, N.H., Wallbrink, S.J. and McDougall, K. (1992). Field guide to Victoria's native grasslands. South Melbourne: Victoria Press.
5. Elliot, W. R. and Jones, D. L. (1984). Encyclopaedia of Australian plants suitable for cultivation. Vol. 3. Lothian.
6. Turner, F. (1895). Australian Grasses. Vol. 1. Sydney: Government Printer.

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SEED BIOLOGY WORKSHOP

Thanks to Dr. Don Loch for the following notification.

A National Workshop on native seed biology for revegetation will be held at Technology Centre, W.A. Technology Park, Perth W.A. on 24th to 26th August, 1994. The keynote speakers will include Mr. Shane Campbell (Queensland Department of Primary Industries) whose topic will be 'Germination factors for Native Grasses'.

For further information, contact:

Dr. Clive Bell

Director, Australian Centre for Minesite Rehabilitation Research,
c/- Julius Kruttschnitt Mineral Research Centre;
Isles Road, Indooroopilly,
Brisbane Queensland 4068

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FIRE AND REGENERATION

Thanks to Ian Higgins for contributing the following article.

Rediscovering firestick 'farming' - Regeneration of indigenous plantscapes with native grasses

by Ian Higgins

38 Main Road, Campbells Creek, Victoria 3450

Control of the ground layer is vital in any revegetation work. The ground layer is where recruitment of both weeds and native plants takes place. If management can tip the balance of recruitment in favour of the natives, we could win a few battles in the fight to conserve viable native vegetation. The experiences described below show that local native grasses and fire can be used to gain control of the ground layer. Once weeds are reduced, regeneration of a range of other species becomes possible.

John Robinson lives at Strathfieldsaye, near Bendigo (rainfall 550 mm. p.a., elevation 220 m.) on the silty soils next to Sheep Wash Creek. His interest in wildlife and native vegetation has led him to work at increasing the extent of the remnant native grasses that were patchily present amongst the weeds. The grass species are mainly *Danthonia linkii*, and *D. racemosa*, with some *D. procera*, *D. duttoniana*, and *D. eriantha*. *Elymus scabrus*, *Microlaena stipoides*, *Stipa scabra* ssp. *falcata*, *S. mollis*, *Aristida behriana*, and *Themeda triandra* are also present. There are very few broadleaf herbs and few species. They included *Pelargonium rodneyanum*, *Rumex brownii*, *Alternanthera denticulata* (and a so far unidentified *Alternanthera*) and locally rare *Glycine tabacina* and *Desmodium varians*.

The five acres have been John's house block for twenty years and are now a marked contrast to the adjacent paddocks. The ground layer vegetation there, like most of the district, is dominated by annual weeds (Wild Oat, Bromes, Barley Grass, Silver Grass, Capeweed etc.) Away from the trees perennial weeds (Docks) and exotic pasture species (*Phalaris*) occur. In this situation, which is widespread in much of rural Victoria, there is very little regeneration of any native vegetation, including trees.

Previously John hand weeded amongst some of his native grass patches and this has allowed the stands of grass to thicken up. Now he is able to sweep up the fallen *Danthonia* seed (uncontaminated by weed seed) and use it to sow new areas.

Recently, he has started using fire to achieve weed control. He feels that autumn or summer fires are of no disadvantage to annual exotic weeds and burning at these times simply maintains the status quo.

By burning in spring (the fuel load is provided by the previous season's ungrazed growth) he has found that the balance is tipped in favour of the native (perennial) grasses which recover well from (and seem rejuvenated by) fire even when quite small plants. Burning at this time retards and often destroys the annuals present, reducing their seed set. It also helps remove the layer of partly decomposed plant residues (grass and tree leaves) and exposes mineral soil.

John emphasises that this litter layer is of great importance as its presence seems to favour and support the growth of annual weeds and preclude the regeneration of native species. He rakes up any unburnt litter into heaps for burning later.

Burning in this manner has allowed the native grasses to regrow and produce a seed crop, and new seedlings colonise the bare soil.

Tree and shrub seedlings also find ample opportunities to regenerate, although the next year's burning will kill or cut them back. If applied on a broad scale, this regime would create an open grassy landscape just as Aboriginal firing practices are said to have. When John wants the seedlings to survive, he avoids burning them in the next year.

The point is that there are plenty of seedlings regenerating. (Perhaps herbaceous ground flora species could be re-established the same way?)

John's experiences show that burning can help rejuvenate remnant vegetation. Does this mean we have our rural revegetation (tree planting) priorities arse about? Perhaps if we focussed on managing the vegetation at ground level, the re-establishment of trees would take care of itself (given a seed source).

* * *

MYCORRHIZAS OF *Stipa*

A final report on the research project 'Mycorrhizas of *Atriplex* and *Stipa*' by Dr. M. Tester (University of Adelaide) is available from the Australian Flora Foundation for \$5. Write to: The Honorary Secretary, Australian Flora Foundation, GPO Box 205, Sydney, N.S.W. 2001.

(Source: Native Plants for New South Wales. 28 (2), June 1993.)

REVEGETATION OF WALLABY GRASSES

The following article is one of a series of native grass revegetation information sheets produced by Bushland Flora, P.O. Box 312, Mt. Evelyn, Victoria 3796. It is reprinted with permission.

REVEGETATION OF WALLABY GRASSES (*Danthonia* spp.)

Introduction

These guidelines have been prepared to help in the establishment of Wallaby Grasses (*Danthonia* species) from seed supplied by Bushland Flora.

Site Selection

There are two important aspects of site selection:

1. The site must be completely weed free. Wallaby Grasses are not as vigorous as most exotic grasses and herbs and will not be able to establish if they have to compete with them. Sites which are poor in nutrients, with low moisture levels (like under trees), sunny north-facing, and few existing weeds, are best suited to Wallaby grasses.
2. The site must not be invaded by weeds within three to four months. Wallaby Grasses are slow to establish and if the site is initially weed free, but weed seeds germinate within three to four months then it is likely that the young Wallaby Grass seedlings will be smothered.

For these reasons we recommend Wallaby grasses be sown only onto virgin subsoil which is free of weed seeds, or that extensive site preparation works are undertaken to eliminate all weeds and weed seeds.

Wallaby Grasses are suited only to low wear situations, and do not tolerate large amounts of foot or vehicle traffic.

Seedbed Preparation

Sites which contain weeds should be sprayed (when the weeds are actively growing) with "Roundup" (Glyphosate) several times at three to four week intervals to kill existing growth and subsequent weed regrowth.

The seedbed for lawns needs to be properly prepared for best results, including rotary hoeing and raking. For sites such as embankments it is best to scarify the soil surface to enable the seed to get a good hold into the soil, but rotary hoeing is normally impossible.

Sowing

Wallaby Grasses require cool temperatures and high moisture levels for germination, and must be well established to survive the first Summer. For these reasons we recommend sowing in autumn (March onwards), after the first major rains, or Winter (up to the end of July). These times enable the seeds to germinate well, and give the seedlings enough time to establish before their first Summer.

If irrigation is available then Wallaby Grasses can be sown at almost any time of the year. Spring sowing is good if irrigation is available as Wallaby Grasses respond well to irrigation over Summer.

If the seed is supplied as "florets" which are the individual fluffy fruits (creamy and very hairy), then these need to be sown on the surface by hand, or applied by hydro-mulching or hydro-seeding. Hand sowing is difficult to get even, so we recommend you sow 45% in one direction, and sow 45% in the opposite direction, and keep 10% to re-seed any bare patches which may become evident after germination. For hydro-mulching we recommend using 1650 Kg/Ha of cellulose fibre mulch, and on embankments 150L/Ha "Staybind" PVA binder should also be added. Hydro-seeding is where the seed is applied in water without the mulch or binder, and is suitable only for flat sites where moisture-stress is not likely to be a problem (the cellulose fibre mulch helps reduce moisture stress).

Pure seed (red-brown and about 1 mm diam) can be sown with equipment, but must be sown on the surface only. It is best to bulk-up pure seed with sand as it is very difficult to sow pure seed at a light enough rate.

We recommend and supply seed at a turf sowing rate of a minimum of 1000 germinable seeds per square metre, to result in a rate of 100 seedlings per square metre. For non turf areas we suggest that this rate can be reduced.

Establishment

Seed or florets sown in Autumn or Winter need no special attention during germination as long as moisture levels are high. If rains are unreliable supplementary watering must be conducted as most native grasses are more susceptible to moisture stress during germination than are exotic grasses.

Spring or Summer sowings require irrigation, and we recommend the seeds must be kept constantly moist until germination which can take 2 weeks, then daily for the next two weeks, and weekly waterings until the Autumn.

Once established Wallaby Grasses are very drought tolerant, and watering in Summer is not necessary. However to keep them green, especially in a lawn situation, watering over Summer is recommended. They respond well to Summer irrigation, unlike many exotic grasses.

Weeds should be spot sprayed with "Roundup" or hand weeded until the seedlings pass a 5 leaf stage. After this broad-leaf weeds can be selectively eradicated by using a herbicide containing MCPA and Dicamba (e.g. "Banvel M" or "Valiant"). Exotic perennial grasses will still require hand weeding or spot-spraying with "Roundup".

Management

For lawn situations Wallaby Grass can be mown to conventional heights, but is best if mown no less than 2 cm. For most situations Wallaby Grasses can be left unmown or only be cut a couple of times a year to remove the flowering or seeding heads (if desired), as the plants only grow 10-15 cm tall. The seed-heads are quite ornamental, being creamy coloured and very fluffy. Wallaby Grass forms a different lawn to conventional lawns because its foliage is often very fine and grey-green.

Wallaby Grasses are best not fertilised, as they can be short lived on fertile sites. They are particularly good on sites which are poor in Phosphorous.

* * *

ARTICLES ON SEED HARVESTING

Dr. Don Loch (Principal Scientist, QDPI, P.O. Box 395, Gympie, Queensland 4570) has provided the following information.

The Proceedings of XVII International Grassland Congress (held in February 1993) have now been published as three volumes totalling some 2300 pages. Four articles contained in the Proceedings which will be of particular interest to some AGSG members are:

Dewald, C.L., Sims, P.L. and White, L.M. The Woodward Flail-Vac seed stripper: recent progress in harvesting chaffy seed. (pp. 1823-1824)

Hill, M.J. and Loch, D.S. Achieving potential herbage seed yields in tropical regions. (pp. 1629-1635)

Hopkinson, J. M. and Clifford, P.T.P. Mechanical harvesting and processing of temperate zone and tropical pasture seed. (pp. 1815-1822)

Jensen, T.A., Loch, D.S. and Robotham, B.G. Evaluation and development of brush harvesting for chaffy-seeded grasses in Queensland, Australia. (pp. 1824-1825)

Currently, the only library in Australia which has a copy of the Proceedings is the W.A. State Library. However, members are welcome to contact Knud Hansen for further details.

Dr. Loch himself has provided an up-to-date review of the processing/treatment of chaffy grass seeds in:

Loch, D.S. (1993). Tropical pasture establishment. 5. Improved handling of chaffy grass seeds: options, opportunities and value. Tropical Grasslands. 27, 314-326

CONTACT LIST - NEW MEMBERS

Welcome to the following people who have joined the study group in the last few months. Members are encouraged to contact others in order to share and develop their interests.

Ms. Ali Ben Kahn, 8 Edmund Avenue, Unley, S.A. 5061

Gerry & Jenny Butler, PO Box 211, Birdwood, S.A. 5234.
Telephone/Fax: (085) 685 339

Janet Grevillea, PO Box 117, Wangi Wangi, N.S.W. 2267

There are Australian grasses in the bush reserves and on some residential blocks on the Wangi peninsula, Lake Macquarie. I am interested in learning to identify them and encouraging them to continue to grow on our own block. So far I have identified *Imperata cylindrica* (widespread here), *Aristida vagans*, *Bothriochloa macra*, *Eragrostis* (but which species?), *Microlaena stipoides*, *Themeda triandra* and, my favourite, Barbed-wire Grass (*Cymbopogon refractus*). I look forward to learning more through involvement in the Study Group.

Ian Higgins, 38 Main Road, Campbells Creek, Victoria 3450
Telephone (054) 723 093

Sandra Kelly, 114 Stanley Street, North Adelaide, S.A. 5006

I have just bought twenty five acres of grassland at Wistow with some ten River Red Gums and regeneration of same in a small creek bed. I have fenced off the creek and two shelter belts and hope to encourage native grasses in those areas.

Rod Sutherland, Box 52, Natimuk, Victoria 3409
Telephone (053) 874 268

I have recently retired and live in Western Victoria. I have an amateur interest in botany. There are many interesting grasses in my area. I have difficulty identifying them accurately and joined the study group to learn more about grasses.

SEED BANK REPORT

Currently available are:

Species	Provenance
<i>Chloris truncata</i>	Birdwood, S.A.
<i>Danthonia caespitosa</i>	Birdwood, S.A.
<i>Danthonia geniculata</i>	Frankston, Vic.
<i>Danthonia geniculata</i>	Not known
<i>Danthonia longifolia</i>	Metung, Vic.
<i>Danthonia setacea</i> (large form, dense purple heads)	Mt. Eliza, Victoria
<i>Danthonia setacea</i> (Fine form)	Frankston, Victoria
<i>Dichanthium sericeum</i>	Kincora, via Pittsworth, Queensland
<i>Echinopogon ovatus</i>	Frankston, Victoria
<i>Eragrostis trachycarpa</i>	Metung, Victoria
<i>Festuca asperula</i>	Wombargo, Victoria
<i>Microlaena stipoides</i>	Birdwood, S.A.
<i>Poa morrisii</i>	Langwarrin, Victoria
<i>Poa</i> spp. (Mixed seed of the alpine species <i>P. fawcettiae</i> , <i>P. phillipsiana</i> , <i>P. hiemata</i> and <i>P. costiniana</i>)	Mt. Buffalo, Victoria
<i>Stipa elegantissima</i>	Frankston, Victoria
<i>Stipa nodosa</i>	Not known
<i>Stipa scabra</i> ssp. <i>falcata</i>	Not known

Thanks to seed donors:

Dr. Don Loch, Pat Tratt

To obtain seed:

Please list species requested in order of preference and send with stamped, self-addressed envelope to:

Knud Hansen, 30 Cairo Road, Box Hill North, Victoria, 3129.

To donate seed:

All donations are appreciated. Post seed to:

Knud Hansen (at above address)

CORRESPONDENCE

34 Banks Avenue,
North Turramurra, N.S.W. 2074

10th January 1994

Dear Knud,

On my last visit to the crisp, clean air and waters of Tasmania and Bruny Island I've marvelled about the variety and abundance of native grasses there.

At a native plant nursery in Fern Tree I picked up a publication by Andrew Zacharek about "Revegetating with native grasses on roadsides in Tasmania" - a Greening Australia (TAS) Inc. publication partly funded by the National Estate Grants Program of the Australian Heritage Commission and by Save the Bush August, 1993.

A lovely project worthwhile extending all over Australia

While browsing in a hardware store in Kingston (some twelve kilometres south of Hobart) I came across an information section dealing with the application of "Roundup". On a board, cards were displayed, lots of them, each dealing with a weed and the specific way of killing it with "Roundup". To my surprise among genuine weeds also genuine native grasses were chosen for eradication. It seems that Monsanto Co. U.S.A. (manufacturers of Agent Orange) under licence to Monsanto Australia Ltd. A.C.N. 006725560 has no idea (or is wrongly advised by whom, I wonder?) who is a friend and who is a foe.

If our farmers are being advised how to eradicate Kangaroo Grass, why are we the SGAP Grass Study Group engaged in promoting awareness of native grasses? What Andrew Zacharek constructs Monsanto destroys.

With cordial greetings,
GERDA COHEN
(B. Vet. Med., M. Sc.)